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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/507,440	03/09/2005	Gerd Ahnert	588.1035	6718
23280 7590 09/28/2007 DAVIDSON, DAVIDSON & KAPPEL, LLC 485 SEVENTH AVENUE, 14TH FLOOR NEW YORK, NY 10018			EXAMINER BONCK, RODNEY H	
			ART UNIT 3681	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/507,440  
Filing Date: March 09, 2005  
Appellant(s): AHNERT ET AL.

**MAILED**

SEP 28 2007

**GROUP 3600**

Cary S. Kappel, Reg. No. 36,561  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed August 2, 2007 appealing from the Office action mailed February 28, 2007.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

FR 2807481 (translation attached)	Basso (France)	10-2001
4,966,270	Rispeter et al.	10-1990

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 8-10, 14 and 15 are further rejected under 35 U.S.C. 102(b) as being anticipated by Basso(FR 2 807 481). As called for in claim 8, the single figure of Basso discloses a twin-clutch system comprising two clutches 40, 41 and a clutch cover 46, 47 mounted at each one of the two clutches. Clutch release systems 44, 45 are secured to the covers and are arranged to actuate the clutches. A fastening member 14, 49

couples the clutch covers 46, 47 to one another and spaces the covers from one another. As called for in claim 9, the fastening member comprises at least one connecting element 14 arranged to interconnect the clutch covers. Connecting element 14 is bolt shaped, as called for in claim 10. The twin-clutch system of Basso further comprises a housing 11, each clutch cover being fastened to the housing, as called for in claim 14. The clutch of Basso transmits torque via one or the other of a pair of clutches and thus can be considered a twin clutch transmission, as recited in claim 15.

Claims 8-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Rispeter et al. ('270). As called for in claim 8, the Rispeter et al. device (Figs. 1-7) is a twin clutch system comprising two clutches, one made up of interleaved plates 16 and 17 and the other made up of interleaved plates 20 and 21 (Fig. 4). The system includes clutch covers 4 and 6 (Fig. 4) mounted at each one of the two clutches. There is at least one clutch-release system 33, 34 arranged to actuate the two clutches, the clutch-release systems being secured to the covers 4 and 6 by means of additional members 5 and 7 that are bolted to covers 4 and 6 by bolts 9 and 10 (Fig. 2). A fastening member 2, 8 couples the clutch covers 4 and 6 to one another and spaces the covers from one another. With regard to claim 9, the Rispeter et al. fastening member comprises at least one connecting element, bolt 8, arranged to interconnect the clutch covers to one another. Connecting element 8 is bolt shaped, as called for in claim 10. As claim 11 requires, the bolt-shaped connecting element 8 has two ends, each end being fastened to a respective cover. As seen in Fig. 2 of Rispeter et al., one end of bolt 8 has an

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annular groove and the other end is threaded. The threads can also be considered annular grooves. Thus each end of bolt 8 can be considered to have a receiving section comprising an annular groove, as called for in claims 12 and 13. Members 5 and 7 in Rispeter et al. form a housing, the covers 4 and 6 being fastened to the housing, as claim 14 recites. The clutch of Rispeter et al. transmits torque via one or the other of a pair of clutches and thus can be considered a twin clutch transmission, as recited in claim 15.

#### **(10) Response to Argument**

Appellants' position regarding Basso(FR 2807481) is that Basso lacks the claimed "fastening member" that couples the covers to one another and spaces the covers from one another. Appellants further assert that element 49 is not a fastening member. The claims recite "a fastening member" and further state that the fastening member "comprises at least one connecting element". The examiner takes the position that bolts 14 and plate 49 together constitute a fastening member that comprises a fastening element 14. The fastening member couples the clutch covers 46, 47 to one another and space the covers from one another, as claimed.


Similarly, appellants argue that the Rispeter et al. device lacks the claimed fastening member. It is the examiner's position that bolts 8 and casing part 2 together provide a fastening member that couples covers 4 and 6 together while spacing the covers from one another. The fastening member comprises a fastening element 8, as claimed.

Appellants further argue that, in the Rispeter et al. device, bolt 8 does not have the claimed receiving section that comprises an annular groove. The examiner maintains that, as seen in Fig. 2 of Rispeter et al., bolt 8 is shown having an annular groove at the headed end of bolt 8 (to the right in Fig. 2) and having threads, which are annular grooves, at the opposite end of the bolt. The examiner takes the position that this meets the claim requirement for an annular groove at each end of the bolt.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,  
  
Rodney H. Bonck

Conferees:

Charles A. Marmor (SPE) 

Meredith C. Petravick (Appeal Conference Specialist) 

PTO 2007-6784

CC=FR  
DATE=00.04.10  
KIND=AN  
PN=2807481

[DISPOSITIF D'EMBRAYAGE COMPACT ASSOCIE A UNE BOITE DE  
VITESSES COMPORTANT DEUX ARBRES PRIMAIRES]

NAME OF INVENTOR  
BASSO VINCENT

UNITED STATES PATENT AND TRADEMARK OFFICE  
TRANSLATED BY Schreiber Translations Inc.



PUBLICATION COUNTRY	(10):	FRANCE
DOCUMENT NUMBER	(11):	2807481
DOCUMENT KIND	(12):	PATENT APPLICATION
PUBLICATION DATE	(43):	01.10.12
APPLICATION NUMBER	(21):	00 04558
APPLICATION DATE	(22):	00.04.10
INTERNATIONAL CLASSIFICATION	(51):	
PRIORITY COUNTRY	(33):	
PRIORITY NUMBER	(31):	
PRIORITY DATE	(32):	
INVENTOR(S)	(72):	BASSO VINCENT
APPLICANT(S)	(71):	PEUGEOT CITROEN AUTOMOBILES
DESIGNATED CONTRACTING STATES	(81):	
TITLE	(54):	COMPACT CLUTCH DEVICE RELATED TO A GEAR BOX INCLUDING TWO PRIMARY SHAFTS
FOREIGN TITLE	[54A]:	DISPOSITIF D'EMBRAYAGE COMPACT ASSOCIE A UNE BOITE DE VITESSES COMPORTANT DEUX ARBRES PRIMAIRES

The invention concerns a transmission clutch system for automobile vehicles to be used with a gear box including two primary shafts.

Classic clutches have been conceived for motor vehicles comprising a gear box with one single primary shaft.

However, the concept of gear boxes is currently progressing, and notably due to a concern for standardization, some gear boxes developed by the applicant include two primary coaxial shafts.

These two primary shafts create the need to install two different clutches, for instance, dry monodisk clutches, to act on each of these shafts.

These two clutches considerably increase the space occupancy and size of the clutch housing. For this reason, the engine unit cannot be transversely mounted in a vehicle, because it then interferes with the shaft, which damages the vehicle's steering radius.

The purpose of the invention is to overcome these inconveniences by proposing a clutch device for a compact gear box with two primary shafts. This clutch will reduce the

space occupancy and the size of the corresponding clutch housing.

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Thus, the invention concerns a transmission clutch system for automobile vehicles destined to be intercalated between an inertial wheel attached to the thermal engine's crankshaft and the primary drive line of a gear box consisting of two primary shafts, containing the following:

- A clutch plate fastened in rotation with the mentioned wheel;
- A first and second pressure device placed on both sides of the clutch plate, each of them mounted so as to slide along one of the two primary shafts, being attached in rotation to this shaft;

- A first and second pressure device placed on the other side of each of each of the two disks in relation to the clutch plate; and
- A first and a second diaphragm attached in rotation to the wheel; each diaphragm actuates one of the two pressure devices to joint or unjoint each disk with the clutch plate and therefore joint or unjoint each primary shaft with the thermal engine shaft.

Preferably, this clutch includes two mechanisms to hold the diaphragms, which are mounted on the inertial wheel.

In this case these two mechanisms are symmetric in relation to the clutch plate.

The invention also regards a motor vehicle comprising a primary drive line from a gear box, which consists of two primary shafts and a hollow inertial wheel, attached to the thermal engine crankshaft, wherein at least a portion of the clutch is positioned, according to the invention.

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The invention will be better understood, and additional purposes, advantages and characteristics will become clearer in the following description, which corresponds to Drawing 1. Drawing 1 (only drawing) is a general schematic view of the

clutch according to the invention, embodied by means of a cross-sectional view; the section plane passes through the common axis XX' of the crankshaft and the two primary shafts of the gear box.

On the right side of Drawing 1, the number 1 indicates the end of the thermal engine crankshaft, which is not represented.

The gear box, not embodied, is positioned in the interior of a housing C. The primary line of this gear box consists of two shafts, namely a main shaft 2 and an auxiliary tubular shaft 3. The hollow auxiliary shaft is crossed by the main shaft 2 and freely rotates in relation to the latter 2. In addition, the main shaft 2 is longer than the auxiliary tubular shaft 3 and greatly exceeds the shaft 3 at its extremity, located on the side of shaft 1, as shown in the drawing.

At the entrance of the gear box, the portion 30 corresponding to the shaft 3 is guided in roller bearing 300 held by the housing C.

As it is known, the end of the crankshaft 1 is attached to a disk 10, upon which an inertial wheel 11 is mounted.

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The disk 10 has a central bore, which works as a guide of the rotating end 20 of the shaft 2 by means of a roller bearing 12.

Shafts 1, 2 and 3 are therefore mutually centered in relation to the axis  $XX'$ ; the clutch 4, according to the invention, allows one and/or the other primary shafts 2 and 3 to rotationally engage and disengage with the crankshaft 1.

The clutch device 4 consists first and foremost of a clutch plate 49 which is fastened in rotation with the inertial wheel 11.

To this effect, the engine wheel 11 is, for instance, hollowed, in order to show a sensibly ring shaped part 13 which is centered on the axis  $XX'$ .

This configuration also allows lodging in the wheel 11 part of the clutch system, 4, therefore increasing the system's compactness.

Furthermore, the clutch plate 49 is fastened to the ring-shaped portion 13 of the wheel 11 by appropriate fastening 14.

The clutch device 4 also includes two disks 40 and 41 placed on both sides of the clutch plate 49.

Each disk, respectively 40 and 41 is provided with friction pads and its respective hub 400 and 410 is grooved.

This hub slots in on the respective fluting 401 and 411 made on the respective shaft 3 and 2.

Thus, each disk, respectively 40 and 41 can slide in movement according to the axis XX' on the respective shaft 3 and 2, remaining at the same time constantly attached in rotation to the shaft.

The clutch device 4 also includes two ring-shaped pressure devices 42 and 43. The reference pressure device 42 is placed on the other side of the disk 40 in relation to the clutch plate, while the reference pressure device 43 is placed on the other side of the disk 41 in relation to the clutch plate.

Each of these pressure devices 42 and 43 is actuated by an elastic disk or diaphragm 44, 45. Each of these diaphragms, respectively 44, 45 is jointed in rotation to the wheel 11 through a mechanism, respectively 46 and 47.

As illustrated in Drawing 1, the mechanisms 46 and 47 preferably have a symmetrical shape to one another and are also symmetrically placed with regard to the clutch plate 49. Both mechanisms 46 and 47 are, in this embodiment, fastened

on the ring-shaped portion 13 of the wheel 11 by fastening means 14, also implemented for the clutch plate.

The diaphragm 44 can deform itself in order to adopt a slightly concave shape, with its concave portion facing the wheel 11, as illustrated by a dotted line in Drawing 1; this configuration is slightly concave, but presents an opposed

curvature, as illustrated by the line in Drawing 1, depending on whether its central portion is subjected to an axial thrust or not, along the XX' axis, in the direction of shaft 1.

This axial thrust is applied using a hydraulic hub 48 which piston 480 bears against the central ring shaped portion of the diaphragm 44 through a roller bearing 440.

In the position illustrated with lines in Drawing 1, the piston 480 does not apply any pressure on the roller track 440. The diaphragm 44 actuates then the pressure device 42. The disk 40 is then displaced to the right, causing a lock-in effect with a certain tightening of the pads of the disk 40



between the pressure device 42 and the clutch plate 49. Therefore, the attachment of disk 40 and, correlatively, of shaft 3 with shaft 1 is insured in rotation.

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When the piston 480 applies a thrust on the roller track 440, this causes the deformation of the diaphragm 44 which takes the position illustrated by dotted lines in Diagram 1. Thanks to an auxiliary device, this deformation allows the pressure device 42 to shift towards the left and, correlatively, the clutch release.

The diaphragm 45 acts in a symmetric way in relation to the diaphragm 44.

Therefore, in the scheme illustrated with lines in Drawing 1, the diaphragm adopts a slightly concave configuration, which concavity is oriented towards shaft 1; the diaphragm 45 is not subject to any thrust from the

hydraulic hub associated to it and is not embodied in Diagram 1.

In this position, the diaphragm 45 guarantees the attachment in rotation of the disk 41 and, correlatively, of shaft 2 with the crankshaft 1.

When the corresponding hydraulic end applies a thrust on the central portion of the diaphragm 45 by means of a roller track 450, it causes its deformation and the diaphragm 45

adopts a slightly concave configuration, but of an opposed curvature, leading to the clutch release.

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Preferably, disks 40 and 41 include shock-absorbing hubs.

The foregoing description demonstrates that the clutch, according to the invention, is conceived for a gear box with two primary shafts, and that it requires a notably reduced space thanks to a clutch plate, which is common to two disks. The reduction of the elements needed for the clutch or the clutch release of the two primary shafts, allows the clutch system to be more compact. This is favored due to the symmetrical positioning of the parts in relation to the clutch plate.

The clutch device reduced size and container are even more useful thanks to a partially hollow inertial wheel, wherein the clutch system according to the invention can be partially lodged.

The referential signs inserted after the technical characteristics appearing in the claims serve only to facilitate and not hinder the comprehension of the characteristics.

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## CLAIMS

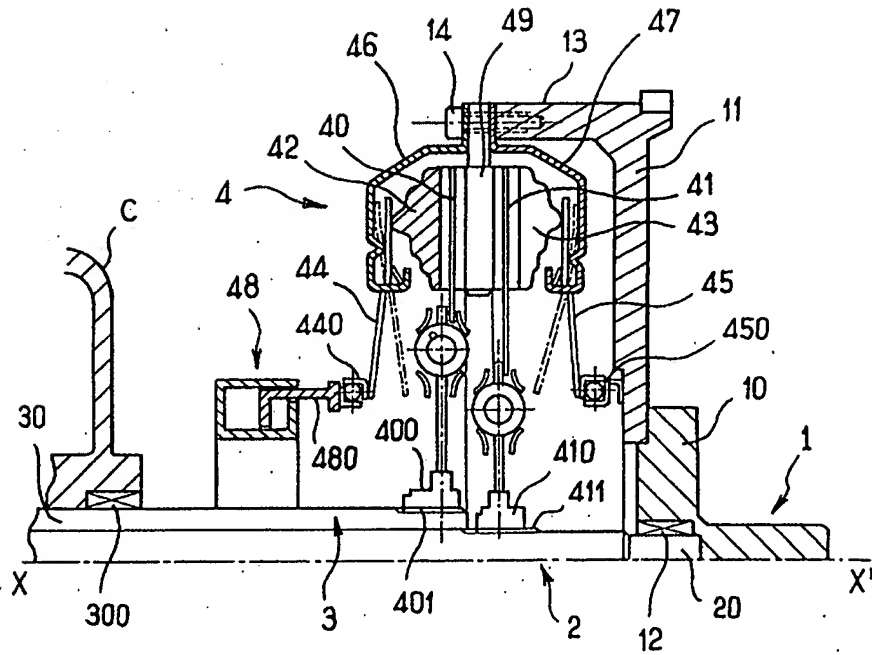
1. Motor vehicle clutch meant to be intercalated between an inertial wheel (11) attached to the thermal engine's crankshaft (1) and the primary drive line of a gear box consisting of two primary shafts (2, 3) containing the following:

- A clutch plate (49) related in rotation to the mentioned wheel (1);
- A first and second disk (40, 41) located on both sides of said clutch plate (49), each of them mounted so as to slide along one of the two primary shafts (3, 2), while being attached in rotation to this shaft;
- A first and second pressing member (42, 43) placed on the other side of each of the two disks (40, 41) in relation to the clutch plate; and
- A first and a second diaphragm (44, 45) related in rotation with the wheel (11); each diaphragm actuating one of the two pressure devices (42, 43) in order to joint or unjoint each of the primary shafts with the thermal engine shaft.

2. Clutch system according to Claim 1, characterized by the fact that it includes two mechanisms (46, 47) bearing the diaphragms (44, 45) that are fixed to the wheel.

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3. Device according to Claim 2, characterized by the fact that the two mechanisms (46, 47) are symmetrical in relation to the clutch plate (49).
4. Motor vehicle comprising a primary drive line of a gear box, which consists of two primary shafts (2, 3) and a hollow inertial wheel (11), attached to the thermal engine crankshaft, wherein at least a portion of the clutch device (4) is at least partially lodged, according to one of the claims 1 to 3.



DRAWING 1

THE REPUBLIC OF  FRANCE  <hr/>  NATIONAL  INSTITUTE  OF  INDUSTRIAL  PROPERTY		PRELIMINARY INVESTIGATION  REPORT  Established on the base of the last claims presented before initiating the research		2807481  National  Registration  Number
				FA 586130  FR 0004558
DOCUMENTS CONSIDERED RELEVANT			Claims	
Categ ory	List of documents indicating the relevant parts, if necessary		concern ing the evaluat ed request	Rating given to the invention on behalf of the INPI

X	FR 1 300 975 A (SOCIETE ANONYME FRANÇAISE DU FERODO)  December 19, 1962 (12-19- 1962)  * page 1, line 1 - line 49; drawing 1 *  -----	1.2	F16D13/38
Y		4	
Y	EP 0 931 951 A (FORD GLOBAL TECH INC)  July 28 1999 (07-28-1999)  * claim 1; drawing 1 *  -----	4	
A	GB 808 553 A (MASSEY-HARRIS- FERGUSON INC.)  February 4, 1959 (02-04-1959)  * Page 1, line 66 - line 88 *  * Drawings 1, 3, 4*  -----	3	
			RESEARCHED  TECHNICAL  FIELDS  (Int. CL 7)
			F16D

Date of conclusion of the research		Examiner	
December 6, 2000		J. Giráldez	



		Sánchez
CATEGORIES OF REFERENCED DOCUMENTS	T: theory of principle on which the invention was based	
X: particularly relevant	E: patent document of a previous filing date, which was only published on the filing date or at a later date.	
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A: technological background	L: referred to for other reasons	
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